



Preface

In early 2008, the organizers of the unforgettable IAS meeting held in Alghero, Sardinia, asked us to develop a session dedicated to the most recent advances in tidal sedimentology. The session aimed to provide an overview of the most original and latest scientific results deriving from many research groups working around the world.

The session received a significant number of oral and poster contributions and the meeting organizers decided to change this session into a plenary, full-day event.

The high scientific value of all the presentations and the very exciting and fruitful discussions among all the researchers involved, encouraged us to propose that some of the works presented be published in a special issue of *Sedimentary Geology*.

The present volume collects 10 works deriving from very different research experiences on tidal depositional systems. The results represent significant advances in new approaches to the study of tidal dynamics, documenting and discussing case studies deriving from ancient successions and modern settings. The chosen papers were divided into three main chapters, dealing with: (i) the perspectives and numerical modeling of tidal systems, (ii) the stratigraphic models of ancient tidal depositional systems and (iii) the tidal signatures in macroforms.

The first introductory paper is divided into two parts: the first part summarizes some fundamentals on tidal dynamics related to the influence of the sun–moon system on the Earth's water surface, providing the basics of tidal systems for 'non-tidal' readers or students. The second part presents an overview of the most recent advances in tidal research, including papers documenting tidal straits, estuaries, deltas and other tidally dominated or influenced settings.

The paper that introduces the first section on *Perspectives and modeling* is from Vakarelov and co-workers, who recognized wave-dominated, tide-influenced shoreline systems in the rock record discussing examples from the Campanian, Bearpaw to Horseshoe Canyon Formation, Alberta, Canada. Dashtgard et al. show tidal effects on a modern shoreface and propose a new conceptual model for tidally-influenced shoreface successions. Tessier and colleagues outline some stratigraphic models from macrotidal estuaries of northwestern France, in relation to high frequency Holocene climate changes.

The section *Stratigraphic models of ancient tidal depositional systems* is introduced by the work of Longhitano et al. The authors present some of the best exposed tidally-influenced, mixed (silici-/bioclastic) deposits from the Neogene–Quaternary of southern Italy, distinguishing different models for embayments and straits. Gingras and co-workers underline how important the use of trace fossils as tidal indicators is in the most common tidal depositional systems. Plink-Björklund critically reviews three well-known examples of tidally influenced/dominated deltaic successions from the Western Interior Seaway, the Baltic Basin and Sptitsbergen.

Finally, the section dedicated to *Tidal signatures in macroforms* contains the paper by Olariu et al., which deals with the diagnostic features distinguishing ancient tidal bars vs. tidal dune deposits from the Baronia Basin, Spain. Musial and colleagues combine subsurface and outcrop datasets supporting the interpretation of large-scale tidally-influenced point bars in the Cretaceous McMurray Fm., whereas Weill et al. document shelly cheniers on a modern macrotidal flat (Mont-Saint-Michel Bay, France) by using ground-penetrating radar techniques.

The organization of the volume and the involvement of some of the most active researchers operating in the tidal realm was a very exciting experience for us as Guest Editors. We acknowledge all the *Sedimentary Geology* Editors and all the editorial managers who assisted us with the complex review process.

We hope that the content of this special issue will be useful for those researchers, students and scientists who will continue to progress the fascinating world of tidal processes and their sedimentary products.

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15 July 2011